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U.S. DEPARTMENT OF ENERGY

FEDERAL ASSISTANCE PROGRAM/PROJECT STATUS REPORT

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1. Program/Project Identification No.	2. Program/Project Title:	3. Reporting Period
DE-FC26-98FT40321	JV Task 39 – Determination of the Speciated Mercury Inventory at Four Coal-Fired Boilers Using Continuous Mercury Monitors	4/1/02 through 6/30/02

4. Name and Address	5. Program/Project Start Date
Energy & Environmental Research Center University of North Dakota PO Box 9018, Grand Forks, ND 58202-9018	4/15/98
	6. Completion Date 3/31/03

7. Approach Changes

At the request of Edison Mission Energy (EME), the parent corporation of Midwest Generation (MG), the original schedule was delayed. They have also requested a proposal for additional analyses, which necessitated an amendment to the original contract and a change in the projected submission date of the draft final report to allow incorporation of the new results.

☐ None

8. Performance Variances, Accomplishments, or Problems

Sampling has been concluded at all three plants (four boilers), where both the Ontario Hydro (OH) mercury speciation method and continuous mercury monitors (CMMs) were used to determine total and speciated mercury. Preliminary analyses confirm that mercury speciation is more attributable to coal type than the type of pollution control device used. The unit burning an eastern bituminous blended coal had fairly high mercury and chloride contents (0.44 µg/g Hg dry, 1240 µg/g Cl dry), and the electrostatic precipitator (ESP) showed little or insignificant removal of mercury. Of the mercury exiting the ESP, most of it was oxidized mercury. However, the flue gas desulfurization (FGD) unit used did provide a significant mercury capture—over 95%. The unit burning a washed eastern bituminous coal had 0.16 µg/g Hg (dry) and 1320 µg/g Cl (dry). The mercury exiting the ESP was primarily oxidized, and the ESP removed ~20% of the mercury.

On the other two units sampled, the Powder River Basin (PRB) coals had lower mercury (0.09 and 0.07 µg/g [dry], respectively) and chlorine (35 and 43 µg/g [dry], respectively) levels. Emissions at these two plants were mostly elemental mercury. One of the coals burned produced a reactive ash, the other did not. At the first plant, the mercury was primarily particulate-bound, and 78% was removed across the ESP. The other unit that burned a PRB had a hot-side ESP, but had minimal mercury removal.

Because coal characteristics seemed to be such a determinant of mercury speciation, EME decided that more analyses would be needed to accurately determine the mercury inventory for MG power plants. Therefore, an add-on proposal was submitted to analyze coal and ash samples for the remaining boilers owned and operated by MG. These results will be incorporated into the draft final for this project.

☐ None

9. Open Items

■ None

10. Status Assessment and Forecast

An add-on proposal has been sent to conduct additional analyses for this project. This will extend the end date of the project. The additional analyses will be incorporated into the draft final in preparation.

☐ No Deviation from Plan is Expected

11. Description of Attachments

■ None

12. Signature of Recipient and Date	13. Signature of U.S. Department of Energy (DOE) Reviewing Representative and Date